

CLAIMS

1. A nitride-based semiconductor light-emitting device, comprising a nitride-based semiconductor light-emitting element chip formed on an electrically conductive substrate, and a submount (103), solder, and a stem (105) each serving as a mount member identified as a supporting base for mounting the nitride-based semiconductor light-emitting element chip, wherein

said nitride-based semiconductor light-emitting element chip, in which a nitride-based semiconductor layer and a first electrode (211) are formed in succession on a surface of the electrically conductive substrate and a second electrode (212) having a conductivity type different from that of the first electrode is formed on a rear surface of the electrically conductive substrate, is mounted on the submount (103) by allowing its second electrode side to face the submount (103) and allowing a first solder material (102) to be interposed therebetween, and said submount (103) having said nitride-based semiconductor light-emitting element chip mounted thereon is further mounted on the stem (105) by allowing its submount side to face the stem (105) and allowing a second solder material (104) to be interposed therebetween.

2. The nitride-based semiconductor light-emitting device according to claim 1, wherein said submount (103) is made of AlN.

3. The nitride-based semiconductor light-emitting device according to claim 1, wherein said first solder material (102) is made of AuSn, and said second solder material (104) is made of one of SnAgCu and In.

4. The nitride-based semiconductor light-emitting device according to claim 1, wherein said electrically conductive substrate (201) is an n-type nitride-based semiconductor substrate.

5. The nitride-based semiconductor light-emitting device according to claim 1, wherein said second electrode (212) is made by forming on the electrically conductive substrate three layers including a first layer which is a metal layer made of a single layer or a plurality of layers, or a metal layer having a plurality of layers mixed therein and makes it possible to form an ohmic electrode on the electrically conductive substrate, a second layer which is a metal layer serving as a barrier metal and made of a single layer or a plurality of layers, and a third layer which is a metal layer made of a single layer or a plurality of layers and having affinity with said first solder material, in this order.

6. The nitride-based semiconductor light-emitting device according to claim 1, wherein said second electrode (212) has a first layer containing at least two types of metal selected from Ti, Hf and Al, a second layer having a layered structure formed by Mo and Pt in this order, and a third layer using Au.

7. A method of manufacturing a nitride-based semiconductor light-emitting device, wherein when said second electrode (212) is formed, said electrically conductive substrate (201) is dry-etched as preprocessing to manufacture the nitride-based semiconductor light-emitting device according to claim 1.